

Claims

I claim:

1. A circuit board assembly comprising:
 - a printed circuit board;
 - a surface mounted ceramic device having first and second ends with end caps;
 - 5 first and second electrically conductive pads supporting respective said first and second ends of said device above said printed circuit board, said first and second pads being soldered to said device respective first and second end caps;
 - 10 a heat sink positioned adjacent said printed circuit board opposite said pads; and
 - at least one cylindrical thermal via deposited into said printed circuit board thermally connecting each said pad with said heat sink.
- 15 2. A circuit board assembly as described in claim 1, wherein said surface mounted device is a resistor.
3. A circuit board assembly as described in claim 1, wherein said printed circuit board is a multi-layered printed circuit board.
4. A circuit board assembly as described in claim 1, wherein said heat sink includes an electrically conductive rigidizer plate and wherein said rigidizer plate is insulated from said circuit board by an electrically insulating thermally conductive adhesive.
5. A circuit board assembly as described in claim 1 having a plurality of thermal vias.

6. A circuit board assembly as described in claim 1, wherein said vias includes solder which is utilized to electrically connect said surface mounted device end caps with said pad and wherein said solder flows into said via providing a solid thermal path.

7. A circuit board assembly as described in claim 1, having a pad on said circuit board generally opposite said pad supporting said surface mounted device and wherein said via thermally intersects both of said pads.

8. A circuit board assembly as described in claim 1, wherein said via is fabricated from a material said pad is formed from.

9. A circuit board assembly as described in claim 8, wherein said via is plated with a material plating said pad.

10. A circuit board assembly comprising;
a multiple layer printed circuit board;
a surface mounted ceramic device having first and second ends with end caps;
first and second electrically conductive pads supporting respective said first and second ends of said device above said printed circuit board, said first and second pads being soldered to said first and second end caps;
a heat sink positioned adjacent said printed circuit board opposite said pads and separated from said printed circuit board by a thermally conductive electrically insulating adhesive; and
a plurality of cylindrical thermal vias deposited in said printed circuit board pads thermally connecting said first and second pads with respective third and fourth pads

generally on an opposite side of said circuit board, said third and fourth pads being thermally connected via said adhesive with said heat sink.

11. A circuit board assembly comprising;
a printed circuit board;
a ceramic surface mounted device having first and second ends with first and second end caps on said ends;
first and second electrically conductive pads supporting said first and second ends of said device above said printed circuit board, said first and second pads being soldered to said first and second end caps;
a heat sink positioned adjacent said printed circuit board opposite said pads; and
at least a first cylindrical thermal via deposited in said printed circuit board underneath said surface mounted device thermally connected with said heat sink.

12. A circuit board assembly as described in claim 11, wherein said surface mounted device is a resistor.

13. A circuit board assembly as described in claim 11, wherein said printed circuit board is a multi-layered board.

14. A circuit board assembly as described in claim 11, wherein said printed circuit board has a thermally conductive plate intersecting said via opposite said device and said plate is connected to said circuit board via an electrically insulating and thermally conductive adhesive.

15. A circuit board assembly as described in claim 11 having at least one cylindrical thermal via deposited into said printed circuit board thermally connecting one of said pads with said heat sink.

16. A circuit board assembly as described in claim 11, wherein said thermal via is connected with a pad on said printed circuit board underneath said surface mounted device.

17. A circuit board assembly as described in claim 11, wherein said via is fabricated from a material said pad is formed from.

18. A circuit board assembly as described in claim 11 having a plurality of thermal vias.

19. A circuit board assembly as described in claim 11, wherein said via intersects a pad on a side of said circuit board opposite said pad underneath said surface mounted device.